



Assessment Date: July 18, 2003

#### Benefits:

- Implemented 88% of recommendations
- Will save nearly \$113,000 per year
- Showed paybacks periods of less than a year for most projects implemented
- Prompted assessments at other Spartech plants

#### Applications:

Bradley University's IAC team focused on the compressed air system, lighting, and machinery use at potential areas of savings for Spartech Plastics. Recycling, and in some cases, selling old equipment and pallets, helped to streamline waste.

## Spartech Plastics: North American Thermoplastic Extruder Implements Industrial Assessment Findings and Saves More Than \$100,000 Per Year

### Summary

Bradley University's Industrial Assessment Center (IAC), in Peoria, Illinois, performed an energy audit of Spartech Plastics' Richmond, Indiana facility that helped the company save about \$113,000 per year. The IAC, sponsored by the U.S. Department of Energy (DOE) Industrial Technologies Program (ITP), is one of 26 across the nation in which faculty and students provide eligible small- and medium-sized manufacturers with no-cost energy assessments. This assessment project was sponsored by ITP and The Society of the Plastics Industry, Inc. (SPI), a DOE Allied Partner.

The assessment showed that Spartech's Richmond plant could save money by improving waste heat recovery, insulating pipes, and installing high efficiency motors. By implementing many of the recommendations, the company cut energy consumption by more than 7,200 MMBtu, which led to cost savings of nearly \$57,000 annually. Additional recommendations, including selling old equipment or pallets, will save another \$56,000.

### Company Background

Spartech Plastics, headquartered in Clayton, Missouri, has 22 other plants that are strategically positioned throughout the United States and Canada. The company is the largest extruder of custom thermoplastic sheet and roll stock in North America. Spartech has about 100 production lines, two-thirds of which have multi-layer extrusion capabilities. In addition, Spartech serves other markets, including transportation, packaging, building, construction, recreation, and leisure.

The Bradley University team assessed eight of the Spartech plants; the results for the Richmond plant are discussed here. Some of the eight assessed plants had much higher savings in comparison to those of this plant. However, this plant implemented a high percentage of the recommendations. The Richmond facility has one building that measures 93,000 square feet, and uses approximately \$487,000 worth of energy per year. Most of the costs are for electricity and a small portion for natural gas.

### Assessment Approach

A team of students and staff from Bradley University's IAC performed an assessment of Spartech's Richmond facility on July 18, 2003. The assessment was led by



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Dr. Umesh Saxena, IAC Director at the University of Wisconsin-Milwaukee IAC. The assessment team met on site with plant personnel, toured the facility, and collected data. After reviewing potential energy saving opportunities, the assessment team presented their findings to plant managers.

## Recommendations

The assessment team made 16 recommendations to Spartech with potential to improve energy efficiency and reduce waste at the plant. Projects to improve energy efficiency included waste heat recovery, insulation, motor upgrades, and lighting efficiency. Selling old equipment will clean up the facility by reducing clutter, and will generate revenue for the plant. In addition, recycling waste wood and selling pallets will have a positive impact on the environment

## Results

The Richmond plant's management team implemented 14 recommendations from the assessment, as described in the table below. The implemented energy efficiency measures account for half of the annual cost savings for the plant, while waste and productivity improvements account for the other half. Besides saving almost \$113,000 per year, the changes will help this Spartech plant cut energy use by more than 15%.

### Implemented Recommendations for Spartech Plastics' Plant in Richmond, IN

Project Category/ Recommendation	Annual Re- source Savings	Annual Cost Savings	Implementation Cost	Payback Period
<b>Energy</b>				
• Recover compressor waste heat	1,636 MMBtu	\$13,627	\$1,000	Less than 1 month
• Insulate extrusion lines	2,553 MMBtu	\$13,156	\$8,080	7 months
• Install high-efficiency motors	1,007 MMBtu	\$8,345	\$35,510	4.3 years
• Install radiant heaters	889 MMBtu	\$7,407	\$8,000	1 year
• Install photosensors	253 MMBtu	\$5,082	\$1,500	4 months
• Replace metal halide lamps	494 MMBtu	\$3,389	\$9,225	2.7 years
• Use synthetic lubricants	247 MMBtu	\$2,306	\$500	3 months
• Delamp lighting	63 MMBtu	\$1,343	240	2 months
• Use outside air for compressor intakes	65 MMBtu	\$606	\$500	10 months
• Install occupancy sensors	92 MMBtu	\$1,611	\$4,125	2.6 years
<b>Waste</b>				
• Sell wooden pallets	11,664 pallets	\$8,829	\$336	Immediate
• Recycle wood scrap	210,000 lbs wood	\$1,890	\$240	1.5 months
<b>Productivity</b>				
• Sell unused equipment		\$34,400	\$10,000	3 months
• Automate time clock system	780 labor hours	\$10,920	\$5,000	5.5 months
<b>Total</b>	<b>7,299 MMBtu/yr; 210,000 lbs wood; 780 labor hours</b>	<b>\$112,911</b>	<b>\$84,256</b>	

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### Project Partners:

Spartech Plastics  
Richmond, IN

The Society of the Plastics Industry, Inc.  
Washington, DC

### For Additional Information:

Industrial Technologies Program  
Energy Efficiency and Renewable Energy  
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